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An Examination of Georgia Young Farmer Program Participants' Learning Style Preferences

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This study was designed to describe Georgia Young Farmer Program participants' learning style preferences. Using survey research methods, a questionnaire was designed to collect data related to the purpose of the study. The population for this study included active members in the program. Study findings showed that participants had a preference for kinesthetic learning over visual and auditory learning. While participants indicated a preference for kinesthetic learning, all three learning styles were deemed effective. Preferences for learning styles and perception of effectiveness did not differ by personal characteristics. Recommendations include taking learning style preferences into account when designing and delivering programming, training for teachers, and continuing to assess learners' preferences.

Keywords: Adult farmer, FFA, learning styles, vocational education, young farmer programs

Introduction

The Smith-Hughes National Vocational Education Act of 1917 included federal involvement for the first time in secondary vocational education. The Act also incorporated an adult component as part of the secondary agricultural education program for training those working or preparing for work on the farm beyond the age of fourteen (*Smith-Hughes Act of 1917*). Weller and Richwine (2013) noted that with respect to vocational education, public schools had a responsibility to provide adult programs and such adult vocational programs should be tailored to meet individual needs with respect to agricultural education beyond high school. They further noted that adult farmer programs, such as young farmer programs, can be a catalyst for meeting the diverse needs of the agriculture industry (Weller & Richwine, 2013).

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Changes surrounding the agricultural industry and production make preparation for organized programs, such as young farmer programs, and the methods used to deliver information directly responsible for the success of such programs. Carpentier and Iverson (1996) noted a need to acquire information for program planning and wrote

since the typical member is known to have certain characteristics, the NYFEA [National Young Farmer Education Association] should examine the curricular needs for both family and agricultural education delivery systems and farm business development. Finally, these data should be used to evaluate current programs and to aid in planning new programs for the NYFEA, in order to better serve the membership. (p. 46)

Effective planning is an essential element to a system of education for adults that will provide them with an experience to help them achieve prosperity in their business.

Boone, Gartin, Wright, Lawrence, and Odell (2002) indicated that since agriculture teachers primarily teach high school age students, helping these teachers to better develop and teach educational programs for adults is merited. They noted that post-secondary agricultural education programs tasked with preparing students primarily for teaching in a high school classroom should also consider providing educational training in the principles of andragogy or principles of teaching adults. Such preparation is necessary in developing and delivering effective educational programs for adults since methods appropriate for instruction of youth may be different.

Birkenholz and Maricle (1991) highlighted the importance of adult education as a component of agricultural education and noted that young farmer programs are an important part of adult education. Carpentier and Iverson (1997) also articulated the importance of adult education as a component of agricultural education and noted the value of young farmer programs in reaching this particular audience. Martin (1987) wrote that the integration of adult education programs with youth programs varied but noted the importance of such programs. According to Birkenholz and Maricle (1991), "Clearly, there is significant variability among the states with regard to the level, source, and recipients of funding support for adult education in agriculture. There was widespread agreement that every agricultural education program should have an adult component" (p. 24). Boone et al. (2002) noted post-secondary agricultural programs have been instrumental in understanding adult learner needs and developing appropriate delivery strategies needed to appropriately educate adult learners. For example, Trede and Whitaker (2000) found that young farmers had a preference for learning through practical and experiential methods.

Franz, Piercy, Donaldson, Westbrook, and Richard (2010) reported farmers' preferred learning styles were aligned with hands-on approaches. As described subsequently, Dunn and Dunn (1978) referred to this as a kinesthetic learning preference. Franz et al. (2010) also reported

farmer preferences were not aligned with Extension agents' perceptions of how farmers learned. Thereby, this highlights a mismatch between instructors' teaching preferences and farmers' learning preferences. The authors concluded that to better meet the educational needs of farmers, agricultural educators must take into account the learning styles of farmers in the design and conduct of educational programs. Rollins and Yoder (1993) noted that knowing Extension agents' learning style preference can lead to improvements in the instructional design process.

Theoretical Framework

The theoretical framework for this study was based on Dunn and Dunn's (1978) learning styles model and Knowles' (1980) theory of andragogy. Dunn and Dunn (1978) suggested that there are three basic learning styles: kinesthetic, visual, and auditory. A preference for kinesthetic style suggests learning occurs best when instruction uses direct experiences and hands-on activities. A preference for visual style suggests learning occurs best when instruction uses visual experiences such as showing an online video and reading online manuals. A preference for auditory style suggests learning occurs best when instruction uses experiences that rely on auditory senses such as teleconferencing or group discussion. Stitt-Gohdes (2001) noted that instructors tend to rely on their own learning preference when teaching, perhaps to the detriment of a student's learning preference. When teachers know and understand the learning styles of their students, they can better help those students learn more efficiently (Silver, Strong, & Perini, 1997). Claxton and Murrell (1987) found learning was improved when a teacher's delivery strategies matched a student's learning style preference.

Richardson and Mustian (1994) noted that Extension professionals should use and that clientele preferred a variety of delivery strategies for programming. In a study with Iowa beginning farmers, Trede and Whitaker (2000), noted a preference for experientially based instructional methods. In their research with beef producers, Strong, Harder, and Carter (2010) noted that experiential learning, such as field days, was preferred to less experientially based learning, such as lecture. However, there is a lack of current research on the preferred learning of adult farmer program participants (Boatright, 1993; Wells & Iverson, 2001). According to Davis (2006), "A better understanding of learning style preferences can help us to avoid developing and delivering our educational programs from the perspective of our preferred learning style alone" (p. 1).

Understanding how adults learn and helping adults take responsibility for their own learning are central to Knowles' (1980) theory of andragogy. Also central to the andragogical model is the need to accommodate individual learner differences and situational differences (Knowles, Holton, & Swanson, 2005). These authors state further that teachers should take into account an adult learners' learning style when developing instructional materials and teaching.

Georgia Young Farmers Program

“The Georgia Young Farmer program (GYFP) is the adult education component of Georgia’s Agricultural Education program” (Georgia Young Farmers, 2015). GYFP teachers typically teach one secondary agricultural education course in the morning and then dedicate the rest of their time to planning and implementing adult education programs. Therefore, all GYFP teachers are also middle or high school teachers and were, in most cases, secondary teachers of agriculture before becoming GYFP teachers. As such, their academic training was primarily based on pedagogical principles rather than andragogical principles discussed above. During summer months, GYFP teachers provide primarily adult programming and training. GYFP is the largest young farmer program in the country. Working with both youth and adults presents GYFP teachers with unique instructional challenges. Since the young farmer teacher or regular secondary agricultural teacher that teaches adults is expected to present and/or organize educational classes and activities for participants, it is important to determine the best teaching methods for presenting these programs to participating adults.

Purpose

The purpose of this descriptive and correlation study was to describe GYFP participants by learning styles and examine learning style by selected personal characteristics. Specific objectives of the study were to 1) describe GYFP visual, auditory, and kinesthetic learning style preferences; 2) describe GYFP by age, gender, farm employment status; and 3) examine GYFP learning style preference and personal characteristics.

Methods

The GYFP consisted of 52 programs and 4,576 members. The target population included members attending regularly scheduled meetings. GYFP teachers were contacted and asked to estimate the number of regularly attending members. From this data it was estimated that approximately one-third of members regularly attended meetings. Based on this information, GYFP teachers attending the annual state convention were given 30 questionnaires each for distribution to members attending regularly scheduled meetings. Teachers from 18 chapters (34.61%) distributed, collected, and returned the anonymously completed questionnaires via a prepaid return envelope ($n = 340$). These teachers distributed 540 questionnaires and collected and returned 340 questionnaires (62.96%). Data were collected anonymously. As a result of the sampling procedures used, the sample may not be representative of the population from which it was drawn and caution is warranted against generalizing the findings beyond the sample.

The research instrument was developed to determine participants’ learning styles and was based on a review of literature (Gilakjani, 2011; Russell, 2006; Trede & Miller, 2000). The instrument

consisted of two sections. The first section was designed to determine participants' learning style preference and had 30 questions: ten questions related to Kinesthetic learning style preference, ten questions related to visual learning style preference, and ten questions related to auditory learning style preference. A four-point Likert-type summated scale was used to collect learning style preferences: 1 = *Very Ineffective*, 2 = *Ineffective*, 3 = *Effective*, 4 = *Very Effective*. Real limits for descriptive interpretation of the summated scale are: 1–1.49 = *Very Ineffective*, 1.5–2.49 = *Ineffective*, 2.5–3.49 = *Effective*, 3.5–4 = *Very Effective*. The second section was designed to describe participants by selected personal characteristics: age, gender, and farm employment status.

The survey instrument used examples related to farming and agriculture to make it contextually rich. To ensure internal validity, the instrument was reviewed by a panel of experts with expertise in adult education, statistical analysis, career and technical education, animal science, and agricultural communications. Reliability was estimated by calculating a Cronbach's alpha coefficient: visual learning style preference, $r = .74$; auditory learning style preference, $r = .73$; and kinesthetic learning style preference, $r = .76$. The alpha level for statistical significance was set *a priori* at .05.

Findings by Objective

Objective one of the study was to describe GYFP participants' visual, auditory, and kinesthetic learning style preferences. Table 1 shows the statements used to determine participants' learning preferences. Statements that received the highest level of effectiveness were all in the kinesthetic domain: spend a day on-the-job training with an experienced farmer ($M = 3.48$, $SD = .71$), complete a hands-on task while an instructor gives help or information ($M = 3.41$, $SD = .68$), and attend a workshop where participants complete hands-on tasks ($M = 3.32$, $SD = .67$). Two of the three statements that received the lowest level of effectiveness were in the auditory domain: listen to an audio tape on a specific topic ($M = 2.26$, $SD = .71$) and attend a series of in-depth meetings on a specific topic presented by lecture only ($M = 2.48$, $SD = .74$). Study participants indicated an overall preference for kinesthetic learning styles ($M = 3.11$, $SD = .40$) over auditory learning styles ($M = 2.82$, $SD = .37$) and visual learning styles ($M = 2.68$, $SD = .39$). A within-subjects repeated measures analysis of variance (ANOVA) was used to analyze participants' learning style preference, $F(1, 339) = 202.74$, $p < .05$. These results suggest that visual, auditory, and kinesthetic preferred learning styles are significantly different from each other for GYFP participants. It should be noted, however, that all three learning styles were deemed effective by participants using the effectiveness scale.

Table 1. Georgia Young Farmer Participants' Learning Preferences (n = 340)

| Statement | Learning Preference | M | SD |
|--|----------------------------|----------|-----------|
| Spend a day "on-the-job" training with an experienced farmer | K | 3.48 | .71 |
| Complete a hands-on task while an instructor gives help or information | K | 3.41 | .68 |
| Attend a workshop where participants complete hands-on tasks | K | 3.32 | .67 |
| Attend field days, tours of farms where hands-on tasks are completed by attendees | K | 3.27 | .64 |
| Exchanging ideas in a meeting sponsored by a local farmer organization | A | 3.26 | .64 |
| Question other farmers about their success | A | 3.17 | .67 |
| Have an agent or teacher one-on-one make a home visit to train me in a task | K | 3.15 | .77 |
| Repair something on my own | K | 3.07 | .78 |
| Have a consultant instruct me while I perform a task | K | 3.05 | .66 |
| Attend a farming organization workshop where time is given for discussion | A | 2.98 | .63 |
| Attend a round table discussion where I listen to farmers' discussion | A | 2.97 | .70 |
| Watch a demonstration in a classroom | V | 2.93 | .65 |
| Participate in a seminar sponsored by an agribusiness where ideas are exchanged | A | 2.93 | .61 |
| Attend a series of meetings with information on a screen with Power Point presentation | V | 2.94 | .65 |
| Work on my tractor after reading instructions in the owner's manual | V | 2.89 | .79 |
| Assembling new equipment on my own | K | 2.87 | .82 |
| Attend a speech on a specific topic presented by an expert | A | 2.86 | .67 |
| Attempt a new skill on my farm without outside instruction | K | 2.84 | .83 |
| Watch an educational video tape | V | 2.80 | .66 |
| Take a trade course which emphasizes doing projects | K | 2.74 | .75 |
| Attend a meeting by a farm organization where charts and graphs are used | V | 2.72 | .68 |
| Listen to a panel talking on a specific agricultural topic | A | 2.71 | .67 |
| Participate in a community college credit class where discussion is encouraged | A | 2.59 | .72 |
| While shopping for a new tractor, viewing photographs of several possible models | V | 2.58 | .82 |
| Read a pamphlet to obtain instructions on how to calibrate a sprayer | V | 2.56 | .75 |
| Determine which new cattle breed to buy by reading information about them online | V | 2.54 | .74 |
| Read and study trade publications and technical journals | V | 2.49 | .68 |
| Attend a series of in-depth meetings on a specific topic presented by lecture only | A | 2.48 | .74 |
| Read and study a text book for information | V | 2.41 | .75 |
| Listen to an audio tape on a specific topic | A | 2.26 | .71 |

Note: K = Kinesthetic ($M = 3.11$, $SD = .40$); A = Auditory ($M = 2.82$, $SD = .37$); V = Visual ($M = 2.68$, $SD = .39$); Mean Score, 1 (1–1.49) = *Very Ineffective*, 2 (1.5–2.49) = *Ineffective*, 3 (2.5–3.49) = *Effective*, 4 (3.5–4) = *Very Effective*.

Objective two of the study was to describe GYFP by gender, age, and farm employment status and. Participants in this analysis consisted of 285 (84%) males, 47 (14%) females, 8 (2%) who provided no response. Data showed that 49 (14%) participants were 20–27 years old; 46 (14 %) participants were 28–35 years old; 43(13%) participants were 36–42 years old; 41 (12%) participants were 43–49 years old; 154 participants were 50 (45%) years old and older; and 7 (2%) participants did not respond to the question. In this analysis, there were 141 (42%) full-time farmers, 121 (36%) part-time farmers, 28 (8%) agricultural professionals, 40 (12%) non-farmers or agriculture professionals, and 10 (2%) participants who did not respond to this question.

Objective three was to examine GYFP learning style preference and personal characteristics. A multivariate analysis of variance (MANOVA, Wilks' Lambda) test was used to examine the relationship between preferred learning style and gender. As shown in Table 2 there was no statistical difference in preferred learning style by gender, Wilks' Lambda = .91, $F(3,327) = 1.04$, $p > .05$.

Table 2. Georgia Young Farmer Participants' Learning Preferences by Gender (n = 332)

| Preferred Learning Style | Male | | Female | | F |
|--------------------------|------|-----|--------|-----|------|
| | M | SD | M | SD | |
| Kinesthetic | 3.12 | .40 | 3.06 | .41 | 1.04 |
| Auditory | 2.81 | .37 | 2.85 | .32 | |
| Visual | 2.68 | .39 | 2.68 | .41 | |

Note: Mean Score, 1 = *Very Ineffective*, 2 = *Ineffective*, 3 = *Effective*, 4 = *Very Effective*.

A multivariate analysis of variance (MANOVA, Wilks' Lambda) test was used to examine the relationship between preferred learning style and age. As shown in Table 3, there was no statistical difference in preferred learning style by age, Wilks' Lambda = .96, $F(12,862) = 1.19$, $p > .05$.

Table 3. Georgia Young Farmer Participants' Learning Preferences by Age (n = 333)

| Preferred Learning Style | Age 20-27 | | Age 28-35 | | Age 36-42 | | Age 43-49 | | Age 50 and over | | F |
|--------------------------|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------------|-----|------|
| | M | SD | M | SD | M | SD | M | SD | M | SD | |
| Kinesthetic | 3.06 | .43 | 3.12 | .38 | 3.20 | .45 | 3.09 | .45 | 3.08 | .37 | 1.12 |
| Auditory | 2.77 | .40 | 2.85 | .26 | 2.84 | .41 | 2.72 | .36 | 2.83 | .38 | |
| Visual | 2.61 | .43 | 2.79 | .36 | 2.79 | .40 | 2.58 | .33 | 2.69 | .40 | |

Note: Mean Score, 1 = *Very Ineffective*, 2 = *Ineffective*, 3 = *Effective*, 4 = *Very Effective*.

A multivariate analysis of variance (MANOVA, Wilks' Lambda) test was used to examine the relationship between preferred learning style and farm employment status. As shown in Table 4, there was no statistical difference in preferred learning style by farm employment status, Wilks' Lambda = .97, $F(12,857) = 0.67$, $p > .05$.

Table 4. Georgia Young Farmer Participants' Learning Preferences by Farm Employment Status (n = 330)

| Preferred Learning Style | Full-time | | Part-time | | Agriculture Profession | | Non-Farmer or Ag Prof. | | F |
|--------------------------|-----------|-----|-----------|-----|------------------------|-----|------------------------|-----|-----|
| | M | SD | M | SD | M | SD | M | SD | |
| Kinesthetic | 3.14 | .38 | 3.11 | .41 | 3.12 | .43 | 3.05 | .47 | .67 |
| Auditory | 2.81 | .37 | 2.80 | .39 | 2.86 | .42 | 2.86 | .28 | |
| Visual | 2.69 | .41 | 2.67 | .38 | 2.75 | .42 | 2.66 | .32 | |

Note: Mean Score, 1 = *Very Ineffective*, 2 = *Ineffective*, 3 = *Effective*, 4 = *Very Effective*.

Conclusions, Implications, and Discussion

The purpose of this study was to describe GYFP participants' learning style preferences. The results of this study showed that GYFP participants had preferences for a particular learning style, but their preferences were similar regardless of personal characteristics. GYFP participants had a preference for kinesthetic learning over auditory learning and visual learning. This finding is consistent with other research that has shown a preference for kinesthetic learning (Franz et al., 2010; Rollins & Yoder, 1993; Strong et al., 2010). An implication exists that if GYFP teachers take into account learners' learning style preferences in the design and conduct of programs, students, as noted by Silver et al. (1997), will better be able to learn what is being taught and will be more efficient in doing so. The results presented in this study suggest that to achieve this effectiveness and efficiency, GYFP teachers should use instructional strategies that emulate behavioral actions to be undertaken as a result of the learning experience. This includes supervised "on-the-job" training and completing "hands-on" tasks that coincide with the instructions. It is recommended that GYFP teachers assess participants' learning preferences periodically to ensure teachers are aware of participants' learning preferences. This can be done using the questionnaire designed for this study or a modified version of the questionnaire (e.g., select five items from the kinesthetic list, five items from the auditory list, and five items from the visual list). There are also numerous online instruments that can be used to ascertain learning style preferences. It is further recommended that GYFP teachers use information gathered on participants' learning preferences to develop and deliver content. GYFP teachers may also benefit from additional training on learning style preferences and how to take such preferences into account when developing and delivering instruction.

Teachers and instructors, other than GYFP teachers, may also be able to use the instrument developed for this research to identify learning style preferences of their students. Regardless of whether findings of learning style preferences for other learners is similar or not, results may better help teachers understand their students' learning preferences and may give teachers another tool for improving instruction.

While GYFP participants had a preference for kinesthetic learning, the results showed participants indicated that auditory learning and visual learning were also effective methods for teaching. This finding is consistent with Richardson and Mustian (1994) who wrote that Extension professionals should use a variety of instructional delivery strategies. This finding is also consistent with Trede and Whitaker (2000) who wrote that agricultural educators should use a variety of instructional delivery strategies. Understanding learners' preferences, as Davis (2006) noted, can help instructors move beyond their comfort level and connect better with learners.

GYFP participants' learning style preferences did not differ by age, gender, or farm employment status. An implication exists that learning style preferences are stable regardless of personal characteristics. It is recommended that GYFP teachers continue to assess learning style preferences by personal characteristics to ensure teachers are able to modify instructional strategies if differences are found.

Recommendations for additional research include

- 1) Improved sampling procedures to improve the generalizability of findings and recommendations;
- 2) Collecting data from both youth (i.e., secondary students in agricultural education) and GYFP participants and comparing results to determine if, as Boone et al. (2002) concluded, youth and adults require different instructional strategies;
- 3) Collecting data from additional adult populations, including non-farmers, to determine if learning style preferences differ across occupations and other personal characteristics;
- 4) Collecting data from additional adult populations using the instrument developed for this research to describe the consistency and stability of the instrument; and
- 5) Researching the effects on learning when instructional strategies are aligned or mismatched with learners preferences using control and treatment groups.

As the GYFP seeks to better meet the needs of its students, research such as that presented herein may help, teachers should take into account adult learners' learning styles when developing instructional materials and teaching (Knowles et al., 2005). This research may inform the science of how adults learn (Knowles, 1980).

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